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(54) **AN ELECTRONIC MAIL TYPE FACSIMILE DEVICE AND AN ELECTRONIC MAIL RECEPTION METHOD**

FAKSIMILEGERÄT DES E-MAIL TYPUS UND EMPFANGSMETHODE FÜR ELEKTRONISCHE POST
DISPOSITIF DE TELECOPIE DE TYPE COURRIER ELECTRONIQUE ET PROCEDE DE
RECEPTION DE COURRIER ELECTRONIQUE

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Description

Technical Field

[0001] The present invention relates to E-mail type facsimile apparatuses that receive E-mail using a mail server and E-mail reception methods.

Background Art

[0002] E-mail systems that are spreading recently are mainly implemented using personal computers (PC) equipped with large-capacity memories. Conventionally, E-mail is received by a mail server which stores E-mail temporarily and a PC terminal (hereafter referred to as "client PC") that transmits/receives E-mail receives the E-mail by periodically accessing the mail server. The received E-mail is stored in a secondary storage device such as a hard disk of the client PC.

[0003] On the other hand, image files and text files are attached to E-mail. There are a variety of formats and capacities of attached files. Files that cannot be opened by the receiving side sometimes accompany E-mail. A normal client PC receives all files attached to E-mail and stores them in a secondary storage device irrespective of whether the attached files are acceptable or not.

[0004] Recently, facsimile apparatuses (hereafter referred to as "E-mail type facsimile apparatuses") that can handle E-mail are being developed. E-mail type facsimile apparatuses in general are not provided with a secondary storage device like PC. Therefore, there is a limitation to the amount of data that can be stored in the device, and thus it is difficult to receive all files attached to E-mail and store them as with the client PC above.

[0005] Therefore, one possible way to solve this difficulty is to leave E-mail in the server. However, a conventional E-mail type facsimile apparatus cannot determine which E-mail is acceptable or not, nor can receive mail selectively by distinguishing new incoming E-mail and left E-mail in the next access.

[0006] A first objective of the present invention is to provide an E-mail type facsimile apparatus that can leave E-mail in a mail server used as a secondary storage device and distinguish E-mail that has been left and new incoming E-mail in subsequent accesses.

[0007] A second objective of the present invention is to provide an E-mail reception method that can leave E-mail in the mail server used as a secondary storage device and distinguish E-mail that has been left and new incoming E-mail in subsequent accesses.

[0008] Document "Method for interchange of electronic inbasket mail"; Kenneth Mason Publications; 1 February 1993 XP358796 relates to a method fit to travelling users whereby travelling users can access a electronic mail system remotely via a facsimile device without carrying a portable computer. A special Mail Form Processor (FMFP) service is employed in the method.

The facsimile document is received as basic image documents, which should be determined as a designated form type. This allows users to carry paper forms, instead of a computer, and to receive their mail remotely.

Disclosure of Invention

[0009] The present invention provides an E-mail type facsimile apparatus and an E-mail reception method as defined in the appended claims.

Brief Description of Drawings

[0010]

FIG.1 illustrates a conceptual diagram of an E-mail communication system;

FIG.2 illustrates a unit diagram showing an E-mail type facsimile apparatus according to an embodiment of the present invention;

FIG.3 illustrates a functional unit diagram of the E-mail type facsimile apparatus according to the above embodiment;

FIG.4 illustrates an example of E-mail according to the embodiment above;

FIG.5 illustrates a schematic drawing showing a TIFF file format according to the embodiment above;

FIG.6 illustrates a flow chart showing the procedure for receiving E-mail from a mail server in the E-mail type facsimile apparatus according to the embodiment above;

FIG.7 illustrates a flow chart showing the procedure for receiving E-mail from a mail server in the E-mail type facsimile apparatus according to the embodiment above;

FIG.8 illustrates a schematic drawing showing the in/out situation of mail in the mail server according to the embodiment above.

Best Mode for Carrying Out the Invention

[0011] With reference now to FIGs.1 to 8, the embodiment of the present invention is explained below.

[0012] With reference to FIG.1, a general case where mail is transmitted/received through a mail server is explained below. FIG.1 is a conceptual drawing of an E-mail communication system. Mail transmitted from transmitting side terminal 1 which is a PC is stored in secondary storage device 4 of mail server 3 provided on network 2. As a receiving side terminal, E-mail type facsimile apparatus (Internet FAX: IFAX) 5 inquires of mail server 3 and performs reception operation if there is any incoming mail and receives the mail from mail server 3.

[0013] Mail server 3 consists, for example, of a POP (Post Office Protocol) server. Mail server 3 stores mail in secondary storage device 4 in order of arrival. When

it receives an inquiry from the receiving side terminal, mail server 3 performs user authentication and then notifies the total incoming mail number (hereafter referred to as "total mail number"). Mail server 3 transfers mail when it receives a request from the receiving side terminal, and deletes mail when it receives a deletion request.

[0014] FIG.2 illustrates a unit diagram showing the E-mail type facsimile apparatus according to the embodiment of the present invention.

[0015] CPU 11 executes a program and controls the entire apparatus. ROM 12 stores the program executed by CPU 11.

[0016] 1st RAM 13 is a memory that stores the number of messages and message IDs. The 1st RAM 13 is connected to backup battery 14. 2nd RAM 15 is a memory that stores various data such as mail, image files, etc.

[0017] Network control unit 16 is an interface to execute the protocol necessary for transmitting/receiving mail on network 2 such as LAN (Local Area Network). Data transmission/reception unit 17 is a circuit to transmit/receive data. Communications of the present apparatus and mail server 3 are carried out according to a communication protocol such as POP3. The reception data or transmission data are stored in 2nd RAM 15 temporarily.

[0018] Encoding unit 18 converts image data of the original document output from scanner 23 which will be described later to text code for the mail. Decoding unit 19 converts text-coded image data included in the received mail to TIFF format data.

[0019] FAX control unit 20 transmits/receives data through facsimile communications. Modem 21 modulates/demodulates data when transmitting/receiving data over public switched telephone serves network (PSTN) 22.

[0020] Scanner 23 reads the original document and converts it to image data. Printing unit 24 prints the received image data, etc. Bus 25 is a signal line to transmit/receive data between each processing units.

[0021] Then, the function of the E-mail type facsimile apparatus according to the present embodiment configured as shown above is explained below. FIG.3 illustrates a functional unit diagram of the E-mail type facsimile apparatus according to the present embodiment.

[0022] Decision unit 31 decides whether mail is acceptable from mail server 3 or not and whether it is necessary to delete mail from mail server 3 or not. When the mail is acceptable, decision unit 31 acquires the mail and deletes it from mail server 3. When the mail is not acceptable, decision unit 31 does not acquire it, but leaves it in mail server 3. Decision unit 31 stores the mail left in server 3 (hereafter referred to as "left mail") in left mail number storage unit 32 of 1st RAM 13. It also stores the message ID of the latest left mail in ID storage unit 33 of 1st RAM 13 as the left mail ID. Here, a message ID is the identification data of mail and is generally a

unique character string added to the header of a mail message. Therefore, different pieces of mail never have the same message ID. A message ID mainly consists of a domain name, date and time, etc.

[0023] Decision unit 31 makes data transmission / reception unit 17 receive data from mail server 3. The received data are stored in received data storage unit 34 of 2nd RAM 15.

[0024] Header/IFD analysis unit 35 acquires and analyzes necessary information from the received data. To be specific, header/IFD analysis unit 35 acquires mail information such as the message ID, presence/absence of attached files or type of the mail from the header section (hereafter referred to as "mail header") of the mail shown in FIG.4. The mail header contains a message ID (Message-ID), sender address, date data, destination data and subject.

[0025] Furthermore, header/IFD analysis unit 35 acquires attached file information from header 52 (hereafter referred to as "TIFF header") of TIFF file 51 attached to the mail shown in FIG. 5 and IFD (Image file directory) #1 and #2 which indicate the attributes of image data #1 and #2 contained in TIFF file 51. Here, TIFF header 52 contains "II~" or "MM~" which is data peculiar to TIFF files and is one of the indices to determine whether it is TIFF data or not.

[0026] The IFD also consists of two or more tags and each tag stores image data attributes. To be specific, attributes include image type (image file format), resolution, color number and size of the image, etc.

[0027] Since TIFF files are text-coded, they are decoded by decoding unit 19 and then analyzed by header/IFD analysis unit 35.

[0028] Header/IFD analysis unit 35 decides whether said mail is acceptable or not based on the above mail analysis results and hands over those results to decision unit 31. Details of the decision will be explained later with reference to FIG.6 and FIG.7. Decision unit 31 decides whether to receive the mail or not based on the decision of header/IFD analysis unit 3.

[0029] Timer 36 is used to measure the interval at which decision unit 31 accesses mail server 3.

[0030] Message combining unit 37 combines text-data such as a mail header to the text-coded image file which is output from encoding unit 18, to convert it to mail format data. Furthermore, message combining unit 37 synthesizes error mail.

[0031] The procedure for receiving E-mail from the mail server in the E-mail type facsimile apparatus according to the present embodiment is now explained below. FIG.6 and FIG.7 are the flow charts showing the procedure for receiving E-mail from the mail server in the E-mail type facsimile apparatus according to the present embodiment.

[0032] In FIG.5 and FIG.6, K indicates the left mail number, I indicates left mail ID, and N indicates the total mail number stored in mail server 3. The initial value of K is 0 and the initial value of I is empty.

[0033] In step (hereafter referred to as "ST") 501 and ST502, decision unit 31 is on standby and is connected to mail server 3 at a prescribed interval.

[0034] In ST503, decision unit 31 is connected to mail server 3 and acquires total mail number N from mail server 3.

[0035] In ST504, decision unit 31 decides whether left mail number K is 0 or not. This left mail number K is stored in left mail number storage unit 32 when it was connected to mail server 3 at the last time. It advances to ST505 when K is not 0 and to ST508 when K is 0.

[0036] In ST505, decision unit 31 decides whether left mail number K is greater than total mail number N ($K > N$) or not. When $K > N$, it is assumed that there is inconsistency between the number of pieces of mail left at the last time in mail server 3 and the number of pieces of mail actually stored in mail server 3 because some pieces of mail were taken out from another terminal, etc. In this case, since decision unit 31 cannot check the left mail normally, it decides that all N pieces of mail are new incoming mail and advances to ST508 to receive all pieces of mail. On the other hand, When $K > N$ is not the case, it advances to ST506.

[0037] In ST506, decision unit 31 gains the message ID of the Kth mail stored in mail server 3. Decision unit 31 requesting mail server 3 to transfer the 1st line of the Kth mail obtains the message ID of the Kth mail.

[0038] In ST507, decision unit 31 decides whether the message ID of the Kth mail acquired by ST506 matches the left mail ID stored in left mail ID storage unit 33.

[0039] When both IDs do not match in ST507, decision unit 31 decides that all N pieces of mail are new incoming mail and advances to ST508. In ST508, parameter M is set to 1. Parameter M indicates the number of the mail subject to mail analysis and reception processing after ST512.

[0040] When both IDs match, decision unit 31 advances to ST509. In ST509, it decides whether or not $N = K$. In the case where N is not K, the processing goes to ST510. In this case, it is already decided in decision section 31 by ST507 and ST508 that the mails up to Kth were tried to be received at the last time but are still stored in mail server 3 because they could not be outputted, and the mails from K+1th have newly arrived since the last time.

[0041] On the other hand, when N is K in ST509, decision unit 31 decides that there is no incoming mail in ST511 and returns to the standby state in ST501.

[0042] In ST512, parameter M and total mail number N are compared. When M is equal or less than N, decision unit 31 advances to ST513. When M is greater than N, decision unit 31 decides that all pieces of mail have already been received and returns to the standby state in ST501.

[0043] In ST513, it decides whether FAX busy or not. "FAX busy" means that it is not possible to receive mail because, for example, printing unit 24 is busy or performing other processing or received data storage unit

34 of 2nd RAM 15 is full. In this case decision unit 31 returns to the standby state in ST501.

[0044] In ST514 to ST516, header/IFD analysis unit 35 decides whether the Mth mail is acceptable or not as shown below.

[0045] Here, the case where mail is not acceptable refers to the case where the received mail cannot be printed as shown in the following examples:

- The attached file is voice data, word-processed data or motion picture data.
- The attached file is a TIFF file, but other than a minimum set.

[0046] Here, the "minimum set" means the minimum function of the E-mail type facsimile apparatus, and, to be specific, it means paper width of 1728 dots, compression method MH and data array of LSB, etc.

[0047] However, the above compression method is set to use a popular facsimile compression method. Of course, it is acceptable when the apparatus is provided with a compression method such as JBIG as an option.

[0048] First in ST514, header/IFD analysis unit 35 checks the mail header of the mail shown in FIG.4 and decides whether the attached file information indicates a TIFF file or not.

[0049] Specifically, when "Content-types:" included in the mail header is followed by "multipart/mixed," it is assumed that there are some attached files and TIFF files are attached and header/IFD analysis unit 35 advances to ST515. On the other hand, when "Content-type:" is followed by "text" or "Content-type:" is not included, it is assumed that the mail consists of text, it advances to ST517 skipping the subsequent analysis.

[0050] When "Content-type:" included in the mail header or data section is followed by "*****/tiff" (* means any character string), it may be assumed that TIFF files are attached to the mail.

[0051] In ST515, header/IFD analysis unit 35 checks the TIFF header. Specifically, header/IFD analysis unit 35 decides whether there are data beginning with "II~" or "MM~" in the header section of the attached file decoded by decoding unit 19 or not and decides whether the attached file is a TIFF file or not based on the presence/absence of "II~" or "MM~". When header/IFD analysis unit 35 decides that the attached file is a TIFF file, decision unit 31 advances the processing to ST516. On the other hand, when header/IFD analysis unit 35 decides that the attached file is not a TIFF file, decision unit 31 advances the processing to ST520 and ST521.

[0052] In ST516, header/IFD analysis unit 35 checks the IFD of the TIFF file. As described above, the IFD indicates the attributes of image data included in the TIFF file. Therefore, it decides whether it is possible or not to handle image data from the IFD. Header/IFD analysis unit 35 obtains the attributes of the image data included in the decoded TIFF file and decides whether it can handle the image data or not. When the image data

can be handle, decision unit 31 decides that the mail is acceptable and advances the processing to ST517. On the other hand, When the image data cannot be handle, decision unit 31 decides that the mail is not acceptable and advances the processing to ST520 and ST521.

[0053] In ST517, decision unit 31 receives the Mth mail from mail server 3. After the reception is completed, in ST518, decision unit 31 deletes the Mth mail from mail server 3. This reception and deletion are carried out according to POP. Then, decision unit 31 advances to ST519.

[0054] On the other hand, error processes are performed in ST520 to ST523. In ST520, decision unit 31 makes printing unit 24 print an error notification sheet, which indicates that decision 31 has received mail whose attached file format cannot be handled. It is also possible for message combining unit 37 to combine error mail of similar contents of the error notification sheet and transmit it to administration terminal 6 shown in FIG. 1. When error mail is received by administration terminal 6, the administrator receives the left mail from mail server 3 in place of said E-mail type facsimile apparatus.

[0055] In ST522, the left mail ID stored in left mail ID storage unit 33 of 1st RAM 13 is updated by the message ID of the Mth mail. In ST523, left mail number K which was stored in left mail number storage unit 32 is incremented by 1. Then, the processing advances to ST519.

[0056] In ST519, parameter M is incremented by 1 and the processing returns to ST509. Then, the next mail is analyzed and received. This causes the processing between ST509 and ST519 to be repeated until all pieces of mail stored in mail server 3 are collected.

[0057] FIG.8 is a schematic drawing showing the mail in/out status in mail server 3 when the operation above is actually performed.

[0058] Status I indicates that mail server 3 received two pieces of mail, mail A that can be output and mail B that cannot be output in the initial state when the left mail number (K)= 0 and left mail ID (I) is empty.

[0059] Suppose that an inquiry is made of mail server 3 for the first time in this state. Mail server 3 returns "2" as total mail number N. Since this is the first inquiry (K=0), all pieces of mail in mail server 3 are new incoming mail and the number of new pieces of mail is decided to be "2" and mail A is received first. Mail A is deleted after it is output normally. Then the processing goes to reception of mail B is gone received. Since mail B is in a format that does not allow it to be output normally, it is not deleted from mail server. Its message ID is stored in I, K is incremented by 1 to be K=1, then the reception operation is completed. (status II).

[0060] Suppose that in status II, new mail C and D have arrived at mail server 3 (status III) and a second inquiry is made in this state. Mail C can be output and mail D that cannot be output. In this case, mail server 3 returns "3" as total mail number N. Since this value is greater than mail number K (=1) that is number of mail

left and currently held in mail server 3, it is decided that there is new incoming mail. To identify from which part the new incoming mail begins, the message ID of the "K (=1)"th mail (mail B) is obtained and is compared with the message ID of the last mail left and currently held in mail server 3.

[0061] In this case, both IDs match and it is decided that mail up to this "K(=1)"th mail was already received at the last time and subsequent mail C and mail D are received as new incoming mail. Since mail C can be output, it is received and then deleted from mail server 3. Mail D is in a format that does not allow it to be output normally, it is not deleted from the mail server, but its message ID is stored in I, K is incremented by 1 to be K=2 and the reception operation is completed (status IV). Finally, mail B and mail D which could not be output normally remain in mail server 3 and the number of mail pieces left in mail server 3 that is "2" and the message ID of mail D that was left last are stored in the receiving side terminal.

[0062] As described above, according to the E-mail type facsimile apparatus in the present embodiment, decision unit 31 leaves unacceptable mail in mail server 3 and stores the number of pieces of left mail and the message ID of the latest mail in 1st RAM 13 as left mail number K and left mail ID (I), respectively. In the next access, the message ID of the Kth mail stored in mail server 3 is gained and compared with the left mail ID. When both IDs match, the "K+1"th and subsequent pieces of mail are received. Therefore, it is possible to distinguish left mail and new incoming mail, avoiding repeated reception of left mail.

[0063] Furthermore, header/IFD analysis unit 35 analyzes the mail header, TIFF header and IFD and decides whether or not to accept the mail based on the analysis result. When the mail is acceptable, the mail is received, then deleted. On the other hand, when the mail is unacceptable it leaves the mail as left mail in mail server 3. Thus, mail server 3 can be used as a secondary storage device.

[0064] When the mail is decided unacceptable, decision unit 31 can make printing unit 24 print an error notification sheet or make data transmission/reception section 17 send error mail to the sender or administrator, requesting the sender to retransmit appropriate mail or to receive the mail in place of the administrator.

[0065] It is also possible for FAX control unit 20 shown in FIG.2 to send the error notification sheet to the sender through the nearest facsimile apparatus to inform it of the error.

[0066] As shown above, the present embodiment makes it possible to implement optimal E-mail transmission / reception in a facsimile apparatus with a small memory capacity.

[0067] As described above, according to the present invention, it is possible to leave E-mail in the mail server using it as a secondary storage device and distinguish the E-mail left and new incoming E-mail in subsequent

accesses.

Claims

1. An E-mail type facsimile apparatus for receiving image data through a computer network, comprising:

an interface (16) which is connected to the computer network;

a processor (11) being configured to access a mail server to retrieve E-mails, which may include an attached file with image data of different formats,

characterized in that,

the processor further being configured to convert at least one image data format into a format to be processed by the facsimile apparatus;

the processor further being configured to obtain the total mail number (N) stored in the mail server; and the processor further being configured to analyse headers of the E-mails on whether the attached file can be processed or not and, if it cannot be processed, the E-mail is left on the mail server as unacceptable;

a memory (13, 15) storing the number (K) of unacceptable E-mail pieces left in the mail server and at least the latest unacceptable E-mail identification data, a mail reception unit adapted to identify the latest E-mail which has already been analysed and considered as unacceptable, to compare the identification data stored in said memory with the identification data stored in the mail server, and to retrieve only those E-mails which are newer than the latest unacceptable E-mail.

2. The apparatus according to claim 1, wherein said processor is further configured to decide whether or not the E-mail is acceptable by means of deciding whether the information of the attached file in the E-mail indicates the attached file is a designated TIFF file or not, to analyse the attributes of the image data included in the designated TIFF file, and to decide whether the image data can be converted or not; wherein if the attached file is a designated TIFF file and the image data in the TIFF file can be converted to a format processed by the facsimile apparatus, the mail is decided to be "acceptable", and if the attached file is not a designated TIFF file or the image data in the TIFF file can not be converted to a format processed by the facsimile apparatus, the mail is decided to be unacceptable.

3. The apparatus according to claims 1 or 2, wherein said processor is further configured to analyse at least one of an E-mail header section, a TIFF file

header section and a TIFF file image file attribute of the E-mail.

4. The apparatus according to any of claims 1-3, wherein said processor is further configured to output an error message when said processor decides that the E-mail is unacceptable.

5. The apparatus according to claim 5, wherein said processor is further configured to output the error message by facsimile.

6. A method for receiving image data through a computer network, comprising the steps of:

connecting to the computer network;

accessing a mail server to retrieve E-mails, which may include an attached file with image data of different formats;

characterized by

converting at least one image data format to be processed by the facsimile apparatus;

obtaining the total mail number (N) stored in the mail server;

analysing the header of the E-mails on whether the attached file can be processed or not and, if it cannot be processed, the E-mail is left on the mail server as unacceptable,

storing the number (K) of unacceptable E-mail pieces left in the mail server and at least the latest unacceptable E-mail identification data;

identifying the latest E-mail which has already been analysed; and considered as unacceptable;

comparing the identification data stored in said memory with the identification data stored in the mail server; and

retrieving only those E-mails which are newer than the latest unacceptable E-mail.

7. The method according to claim 6, further comprising the steps of:

deciding whether the information of the attached file in the E-mail indicates the attached file is a designated TIFF file or not;

analysing the attributes of the image data included in the designated TIFF file; and

deciding whether the image data can be converted or not;

wherein if the attached file is a designated TIFF file and the image data in the TIFF file can be converted to a format processed by the facsimile apparatus, the mail is decided to be "acceptable", and if the

attached file is not a designated TIFF file or the image data in the TIFF file can not be converted to a format processed by the facsimile apparatus, the mail is decided to be unacceptable.

8. The method according to claims 6 or 7, further comprising the step of analysing at least one of an E-mail header section, a TIFF file header section and a TIFF file image file attribute of the E-mail.
9. The method according to any of claims 6-8, further comprising the step of output an error message when said processor decides that the E-mail is unacceptable.
10. The method according to any of claims 6-9, further comprising the step of output the error message by facsimile.

Patentansprüche

1. E-Mail-Faxvorrichtung zum Empfangen von Bilddaten über ein Computernetz, die umfasst:

eine Schnittstelle (16), die mit dem Computernetz verbunden ist;

einen Prozessor (11), der so konfiguriert ist, dass er auf einen Mail-Server zugreift, um E-Mails abzurufen, die eine angehängte Datei mit Bilddaten unterschiedlicher Formate enthalten können,

dadurch gekennzeichnet, dass:

der Prozessor des Weiteren so konfiguriert ist, dass er wenigstens ein Bilddatenformat in ein durch die Faxvorrichtung zu verarbeitendes Format umwandelt;

wobei der Prozessor des Weiteren so konfiguriert ist, dass er die Gesamtzahl (N) der in dem Mail-Server gespeicherten Mails bestimmt; und der Prozessor des Weiteren so konfiguriert ist, dass er Header der E-Mails dahingehend analysiert, ob die angehängte Datei verarbeitet werden kann oder nicht, und, wenn sie nicht verarbeitet werden kann, die E-Mail als nicht annehmbar in dem Mail-Server belassen wird;

ein Speicher (13, 15) die Anzahl (K) nicht annehmbarer einzelner E-Mails, die in dem Mail-Server belassen werden, und wenigstens die Identifizierungsdaten der letzten nicht annehmbaren E-Mail speichert, eine Mail-Empfangseinheit so eingerichtet ist, dass sie die letzte E-Mail identifiziert, die bereits analysiert und als nicht annehmbar betrachtet worden ist, die in dem Speicher gespeicherten

Identifizierungsdaten mit den in dem Mail-Server gespeicherten Identifizierungsdaten vergleicht und nur die E-Mails abrufen, die neuer sind als die letzte nicht annehmbare E-Mail.

2. Vorrichtung nach Anspruch 1, wobei der Prozessor des Weiteren so konfiguriert ist, dass er dadurch entscheidet, ob die E-Mail annehmbar ist oder nicht, dass er entscheidet, ob die Information der angehängten Datei in der E-Mail anzeigt, dass die angehängte Datei eine ausgewiesene TIFF-Datei ist oder nicht, die Attribute der Bilddaten analysiert, die in der ausgewiesenen TIFF-Datei enthalten sind und entscheidet, ob die Bilddaten umgewandelt werden können oder nicht, und wobei, wenn die angehängte Datei eine ausgewiesene TIFF-Datei ist und die Bilddaten in der TIFF-Datei in ein durch die Faxvorrichtung verarbeitendes Format umgewandelt werden können, entschieden wird, dass die E-Mail annehmbar ist, und, wenn die angehängte Datei keine ausgewiesene TIFF-Datei ist oder die Bilddaten in der TIFF-Datei nicht in ein durch die Faxvorrichtung verarbeitendes Format umgewandelt werden können, entschieden wird, dass die E-Mail nicht annehmbar ist.

3. Vorrichtung nach den Ansprüchen 1 oder 2, wobei der Prozessor des Weiteren so konfiguriert ist, dass er wenigstens einen E-Mail-Header-Abschnitt, einen TIFF-Datei-Header-Abschnitt und ein TIFF-Datei-Bilddatei-Attribut der E-Mail analysiert.

4. Vorrichtung nach einem der Ansprüche 1-3, wobei der Prozessor des Weiteren so konfiguriert ist, dass er eine Fehlermeldung ausgibt, wenn der Prozessor entscheidet, dass die E-Mail nicht annehmbar ist.

5. Vorrichtung nach Anspruch 5, wobei der Prozessor des Weiteren so konfiguriert ist, dass er die Fehlermeldung per Fax ausgibt.

6. Verfahren zum Empfangen von Bilddaten über ein Computernetz, das die folgenden Schritte umfasst:

Verbinden mit dem Computernetz;

Zugreifen auf einen Mail-Server, um E-Mails abzurufen, die eine angehängte Datei mit Bilddaten verschiedener Formate enthalten können;

gekennzeichnet durch:

Umwandeln wenigstens eines **durch** die Faxvorrichtung zu verarbeitenden Bilddatenformats;

Bestimmen der Gesamtzahl (N) der in dem

- Mail-Server gespeicherten Mails;
- Analysieren der Header der E-Mails dahingehend, ob die angehängte Datei verarbeitet werden kann oder nicht, und, wenn sie nicht verarbeitet werden kann, Belassen der E-Mail als nicht annehmbar in dem Mail-Server; 5
- Speichern der Anzahl (K) nicht annehmbarer einzelner E-Mails, die in dem Mail-Server belassen werden, und wenigstens der Identifizierungsdaten der letzten nicht annehmbaren E-Mails; 10
- Identifizieren der letzten E-Mail, die bereits analysiert und als nicht annehmbar betrachtet worden ist; 15
- Vergleichen der in dem Speicher gespeicherten Identifizierungsdaten mit den in dem Mail-Server gespeicherten Identifizierungsdaten; und 20
- Abrufen nur der E-Mails, die neuer sind als die letzte nicht annehmbare E-Mail. 25
7. Verfahren nach Anspruch 6, das des Weiteren die folgenden Schritte umfasst:
- Entscheiden, ob die Information der angehängten Datei in der E-Mail anzeigt, dass die angehängte Datei eine ausgewiesene TIFF-Datei ist oder nicht; 30
- Analysieren der Attribute der Bilddaten, die in der ausgewiesenen TIFF-Datei enthalten sind; und 35
- Entscheiden, ob die Bilddaten umgewandelt werden können oder nicht; 40
- wobei, wenn die angehängte Datei eine ausgewiesene TIFF-Datei ist und die Bilddaten in der TIFF-Datei in ein durch die Faxvorrichtung verarbeitetes Format umgewandelt werden können, entschieden wird, dass die E-Mail annehmbar ist, und, wenn die angehängte Datei keine ausgewiesene TIFF-Datei ist oder die Bilddaten in der TIFF-Datei nicht in ein durch die Faxvorrichtung verarbeitetes Format umgewandelt werden können, entschieden wird, dass die E-Mail nicht annehmbar ist. 45 50
8. Verfahren nach Anspruch 6 oder 7, das des Weiteren den Schritt des Analysierens wenigstens eines E-Mail-Header-Abschnitts, eines TIFF-Datei-Header-Abschnitts oder eines TIFF-Datei-Bilddatei-Attributs der E-Mail umfasst. 55

9. Verfahren nach einem der Ansprüche 6-8, das des Weiteren den Schritt des Ausgebens einer Fehlermeldung umfasst, wenn der Prozessor entscheidet, dass die E-Mail nicht annehmbar ist.
10. Verfahren nach einem der Ansprüche 6-9, das des Weiteren den Schritt des Ausgebens der Fehlermeldung per Fax umfasst.

Revendications

1. Appareil de télécopie de type courrier électronique pour recevoir des données d'images par l'intermédiaire d'un réseau d'ordinateurs, comprenant :

une interface (16) qui est connectée au réseau d'ordinateurs ;

un processeur (11) qui est configuré pour accéder au serveur de messagerie pour extraire les courriers électroniques, qui peuvent inclure un fichier joint avec des données d'images de formats différents,

caractérisé en ce que,

le processeur est en outre configuré pour convertir au moins un format de données d'images en un format à traiter par l'appareil de télécopie ;

le processeur est en outre configuré pour obtenir le nombre total de courriers (N) mémorisés dans le serveur de messagerie ; et

le processeur est en outre configuré pour analyser les en-têtes du courrier électronique pour savoir si le fichier joint peut être traité ou non et, s'il ne peut pas être traité, le courrier électronique est laissé dans le serveur de messagerie comme non acceptable ;

une mémoire (13, 15) mémorisant le nombre (K) d'éléments de courrier électronique non acceptables laissés dans le serveur de messagerie et au moins les données d'identification du dernier courrier électronique non acceptable, une unité de réception de courrier adaptée pour identifier le dernier courrier électronique qui a déjà été analysé et considéré comme non acceptable, pour comparer les données d'identification mémorisées dans ladite mémoire avec les données d'identification mémorisées dans le serveur de messagerie, et pour extraire seulement ces courriers électroniques qui sont plus récents que le dernier courrier électronique non acceptable.

2. Appareil selon la revendication 1, dans lequel ledit processeur est en outre configuré pour décider si le courrier électronique est acceptable ou non au moyen de l'étape consistant à décider si des informations du fichier joint dans le courrier électronique

indiquent que le fichier joint est un fichier TIFF désigné ou non, pour analyser les attributs des données d'images inclus dans le fichier TIFF désigné et pour décider si les données d'images peuvent être converties ou non ; dans lequel si le fichier joint est un fichier TIFF désigné et les données d'images dans le fichier TIFF peuvent être converties en un format traité par l'appareil de télécopie, le courrier est décidé comme étant « acceptable », et si le fichier joint n'est pas un fichier TIFF désigné ou les données d'images dans le fichier TIFF ne peuvent pas être converties en un format traité par l'appareil de télécopie, le courrier est décidé comme étant non acceptable.

3. Appareil selon la revendication 1 ou 2, dans lequel ledit processeur est en outre configuré pour analyser au moins une section d'en-tête de courrier électronique, une section d'en-tête de fichier TIFF et un attribut de fichier d'images de fichier TIFF du courrier électronique.

4. Appareil selon l'une quelconque des revendications 1 à 3, dans lequel ledit processeur est en outre configuré pour produire un message d'erreur lorsque ledit processeur décide que le courrier électronique n'est pas acceptable.

5. Appareil selon la revendication 5, dans lequel ledit processeur est en outre configuré pour produire le message d'erreur par télécopie.

6. Procédé pour recevoir des données d'images par l'intermédiaire d'un réseau d'ordinateurs, comprenant les étapes consistant à :

se connecter au réseau d'ordinateurs ;

accéder à un serveur de messagerie pour extraire des courriers électroniques, qui peuvent inclure un fichier joint avec des données d'images de formats différents ;

caractérisé par les étapes consistant à

convertir au moins un format de données d'images à traiter par l'appareil de télécopie ;
obtenir le nombre total de courriers (N) mémorisés dans le serveur de messagerie ;
analyser les en-têtes des courriers électroniques pour savoir si le fichier joint peut être traité ou non et, s'il ne peut pas être traité, le courrier électronique est laissé dans le serveur de messagerie comme non acceptable ;
mémoriser le nombre (K) d'éléments de courrier électronique non acceptables laissés dans le serveur de messagerie et au moins les données d'identification du dernier courrier électronique non acceptable ;

identifier le dernier courrier électronique qui a déjà été analysé et considéré comme non acceptable ;
comparer des données d'identification mémorisées dans ladite mémoire avec les données d'identification mémorisées dans le serveur de messagerie ; et
extraire seulement ces courriers électroniques qui sont plus récents que le dernier courrier électronique acceptable.

7. Procédé selon la revendication 6, comprenant en outre les étapes consistant à :

décider si les informations du fichier joint dans le courrier électronique indiquent que le fichier joint est un fichier TIFF désigné ou non ;

analyser les attributs des données d'images inclus dans les fichiers TIFF désignés ; et

décider si les données d'images peuvent être converties ou non ;

dans lequel si le fichier joint est un fichier TIFF désigné et les données d'images dans le fichier TIFF peuvent être converties en un format traité par l'appareil de télécopie, le courrier est décidé comme étant « acceptable », et si le fichier joint n'est pas un fichier TIFF désigné ou les données d'image dans le fichier TIFF ne peuvent pas être converties en un format traité par l'appareil de télécopie, le courrier est décidé comme étant non acceptable.

8. Procédé selon la revendication 6 ou 7, comprenant en outre l'étape consistant à analyser au moins une section d'en-tête de courrier électronique, une section d'en-tête de fichier TIFF et un attribut de fichier d'images de fichier TIFF du courrier électronique.

9. Procédé selon l'une quelconque des revendications 6 à 8, comprenant en outre l'étape consistant à produire un message d'erreur lorsque ledit processeur décide que le courrier électronique n'est pas acceptable.

10. Procédé selon l'une quelconque des revendications 6 à 9, comprenant en outre l'étape consistant à produire le message d'erreur par télécopie.

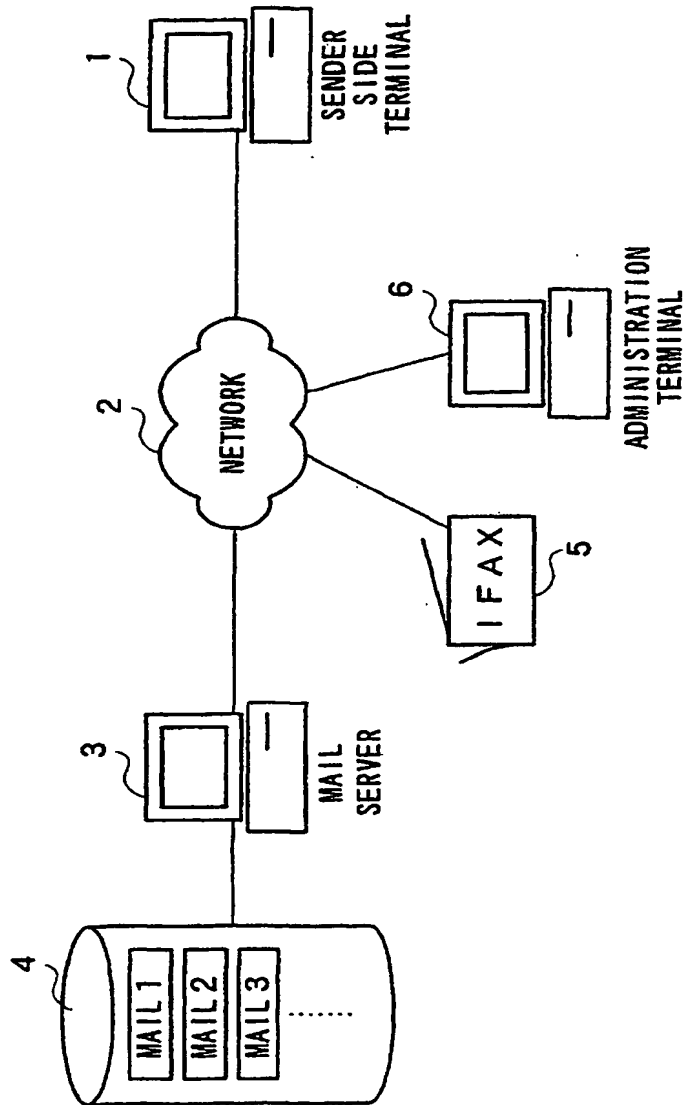


FIG. 1

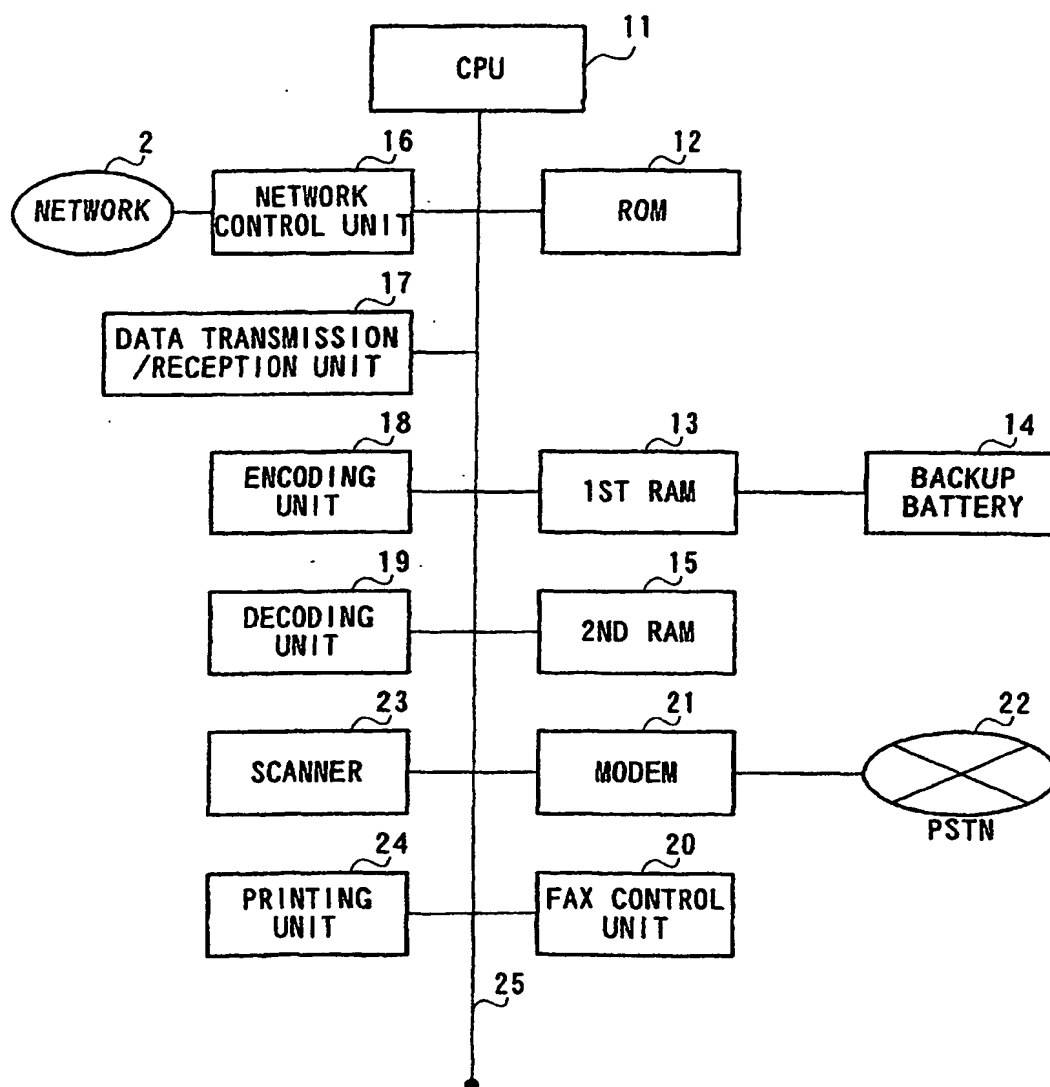


FIG. 2

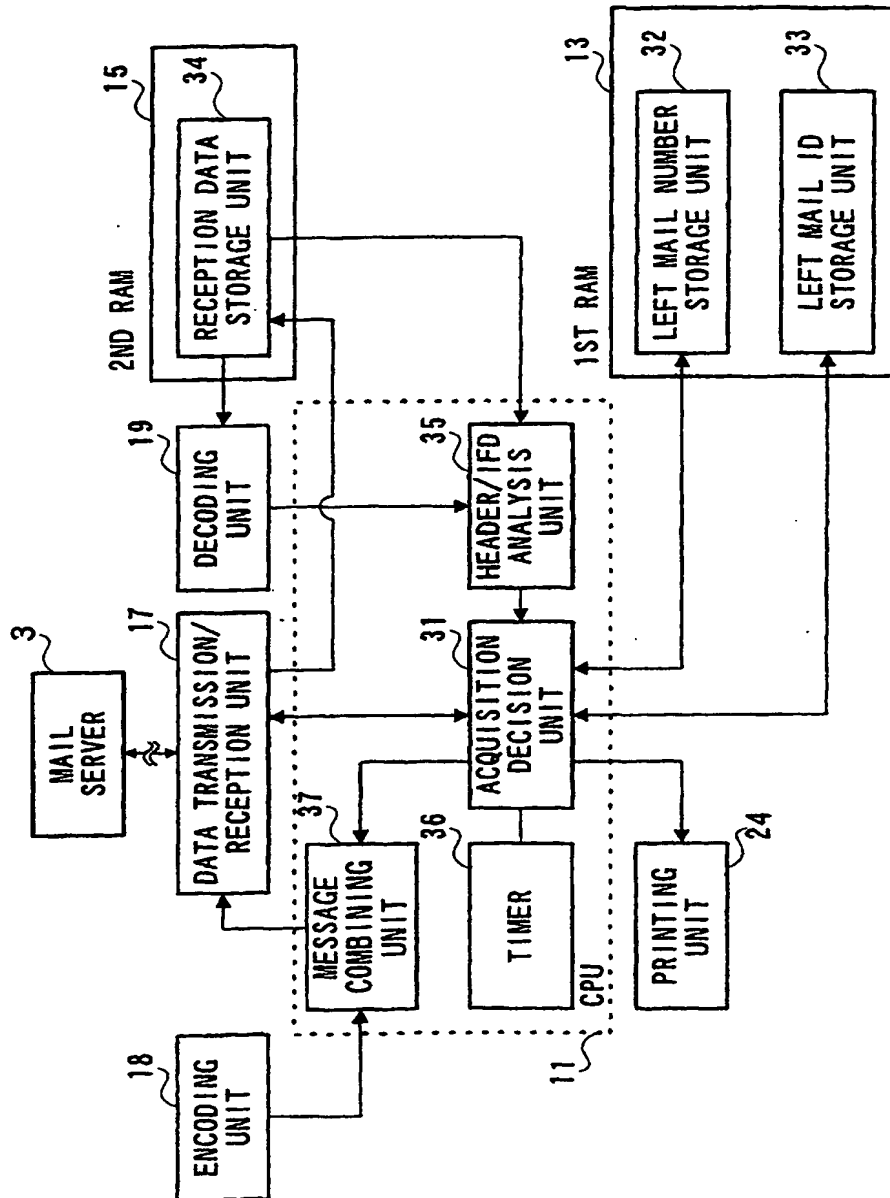


FIG. 3

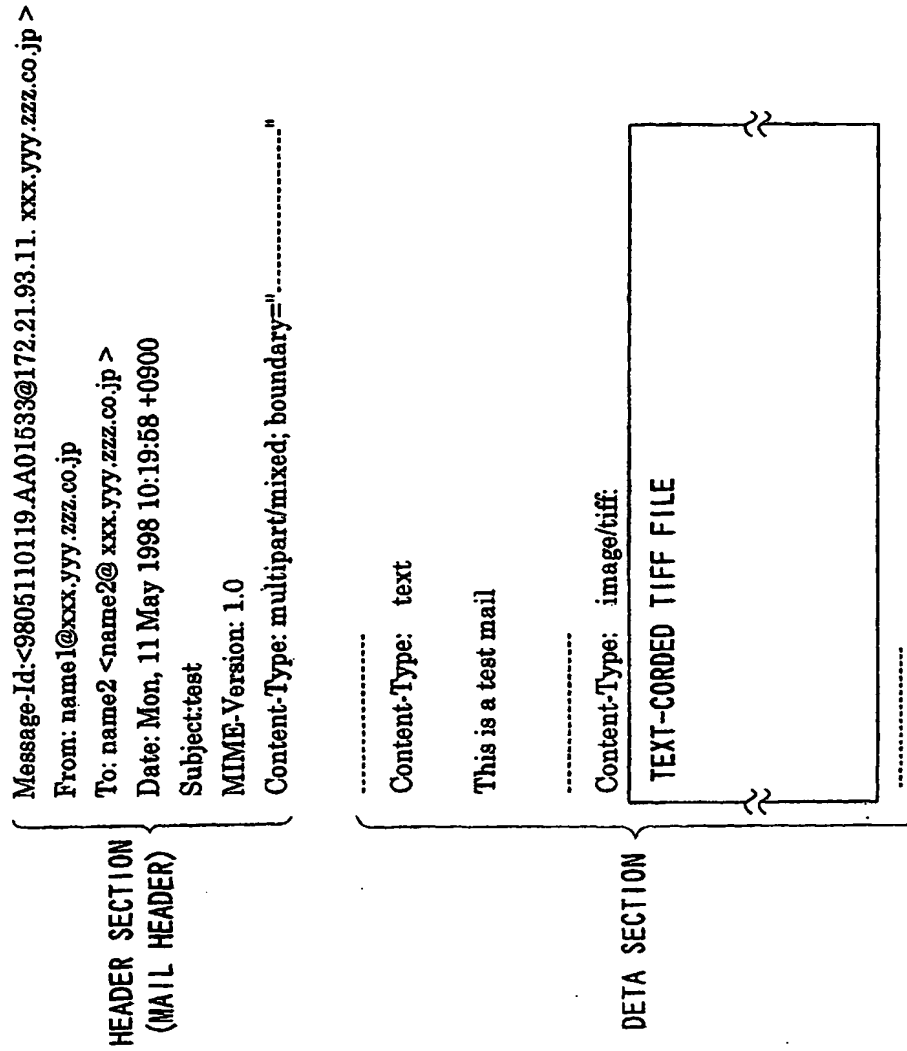


FIG. 4

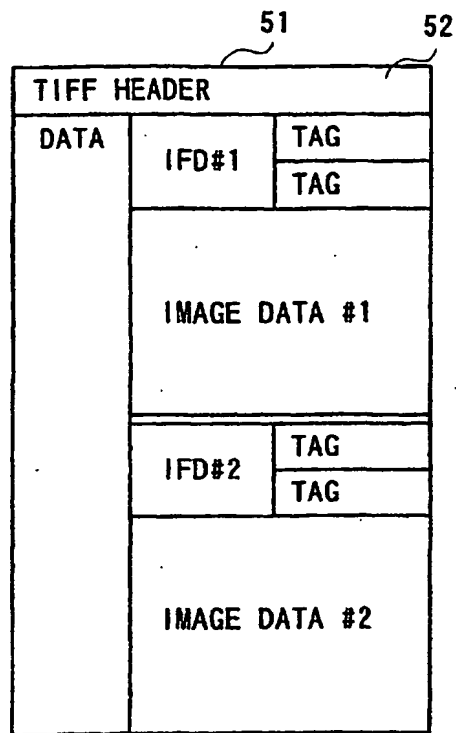


FIG. 5

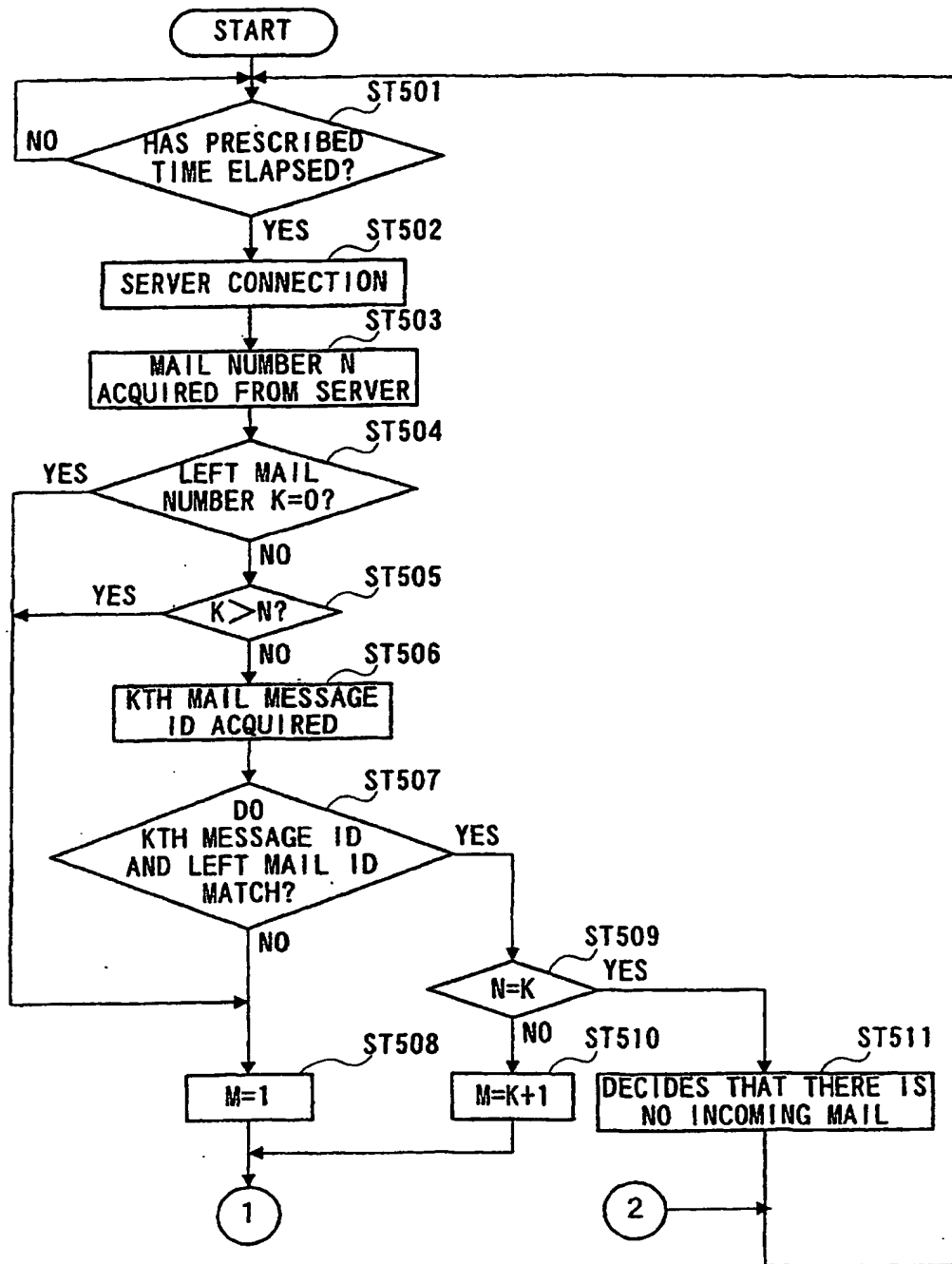


FIG. 6

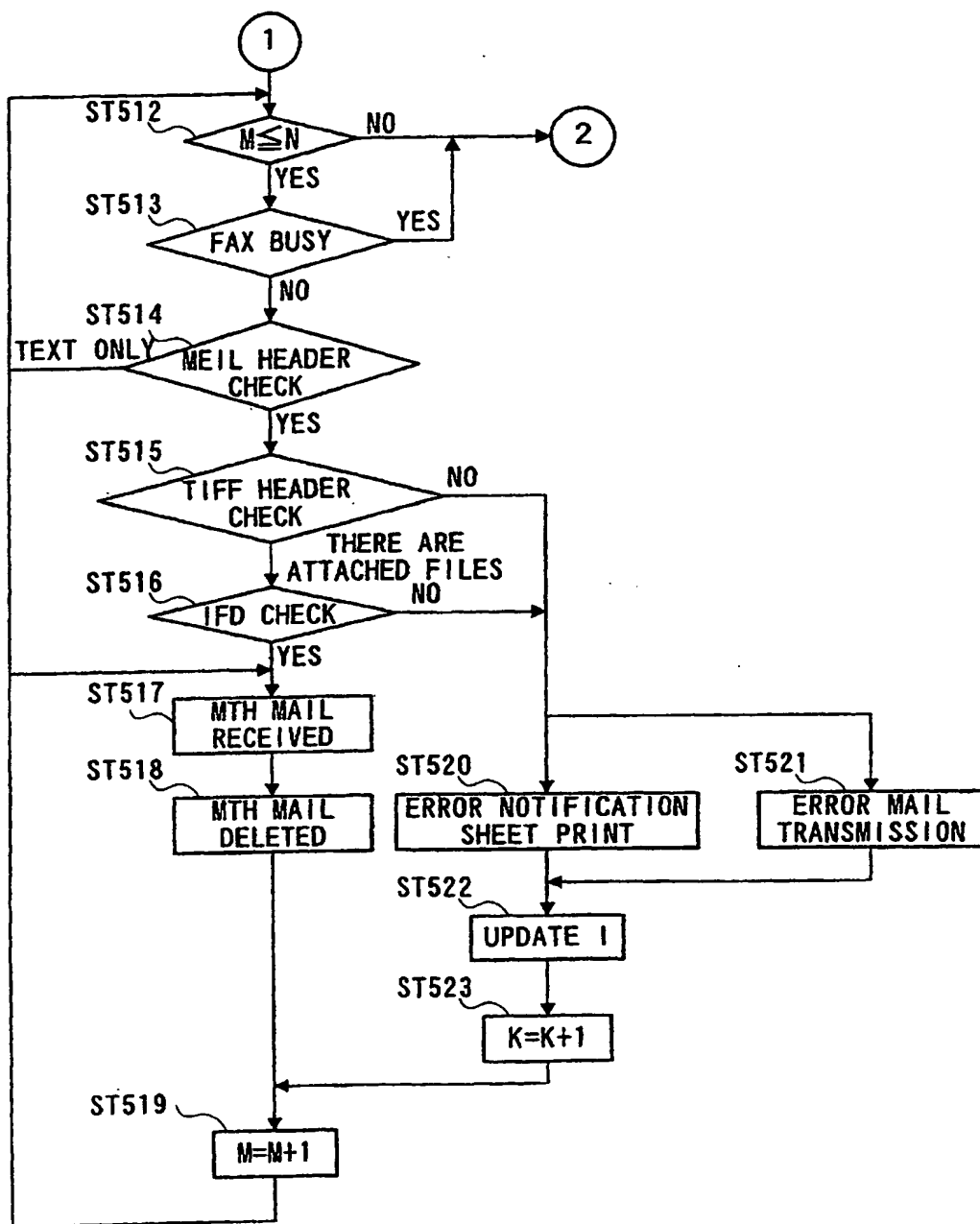


FIG. 7

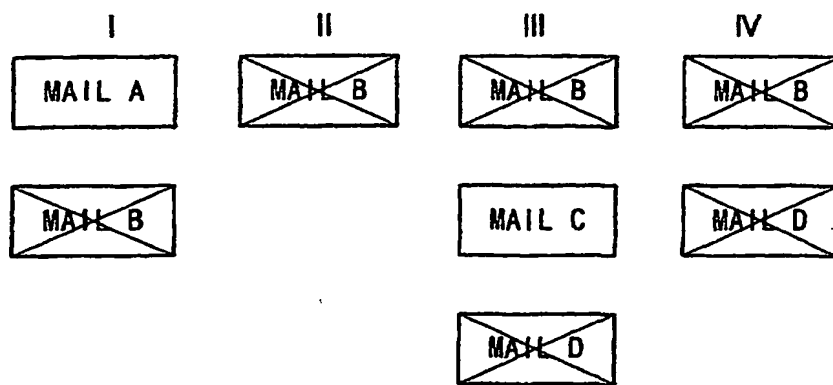


FIG. 8